

Most are predominantly CNS stimulant with secondary effect on Spinal cord

SPINAL POISONS



- Seeds

- Circular
- Flat
- Hard shiny pericarp with silky hair
- Ash grey
- Slightly concave on one side and convex on the other
- 2.5 cm diameter
- 0.6 cm thickness

alkaloids

- Strychnine: colorless –odorless rhombic crystals , soluble in alcohol
- Brucine: colorless prismatic crystals
- Loganin

- Toxic- strychnine and loganin.. Chemically and physiologically resemble but strychnine more toxic

Botanical names

- St. colubrina– snake wood, gogari lakdi, kuchila lata
- St. ignati- papita
- St. tieute- upas tree

uses

- Purgative
- Aphrodisiac
- Nerve tonic
- Purgative
- Vermin killer
- Rodenticide
- Dog button-to kill stray dogs

- Strychnine poisoning can be secondary to accidental exposure to rodenticide, pesticide, quack remedies or following consumption with the intention of deliberate self-harm.
- strychnine is found mixed with “street” drugs such as LSD, heroin, and cocaine.
- Strychnine is a strong poison; only a small amount is needed to produce severe damage

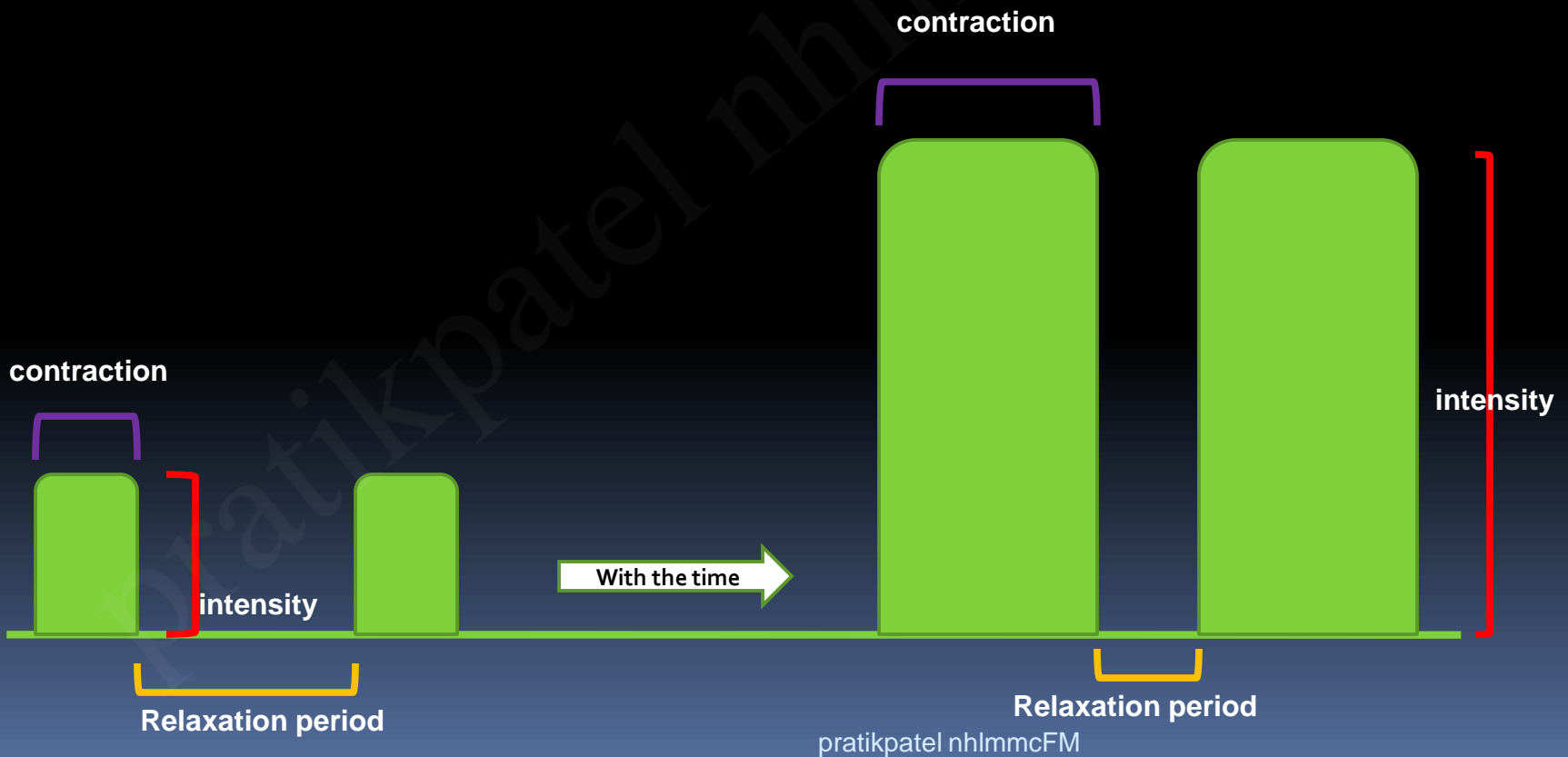
Mechanism of action

- Competitively antagonises the inhibitory neurotransmitter glycine by blocking its post-synaptic uptake by brainstem and spinal cord receptors → “release excitation”
- Site of action : anterior horn of spinal cord

toxicity

- No effect if intact swallowed[if not crushed or chewed]
- Within 15 minutes
- Bitter taste
- Choking sensation, stiffness in neck-face
- Convulsions- clonic [intermittent] and tonic[sustained]-interval and paroxysm
- Extensors are more affected
- Risus sardonicus: grin like expression with angles of mouth drawn outwards, raising eyebrows, bulged eyeballs → dog like laughter
- Opisthotonus-hyperextension on heels and occiput: antigravity muscles are hyperextended
- Emprosthotonus- hyperextension on back;spasm f abdominal muscles
- Pleurosthotonus- lateral bending
- Mind and consciousness
- Death: due to spasm of respiratory muscles and diaphragme or medullary paralysis
- Fatal dose

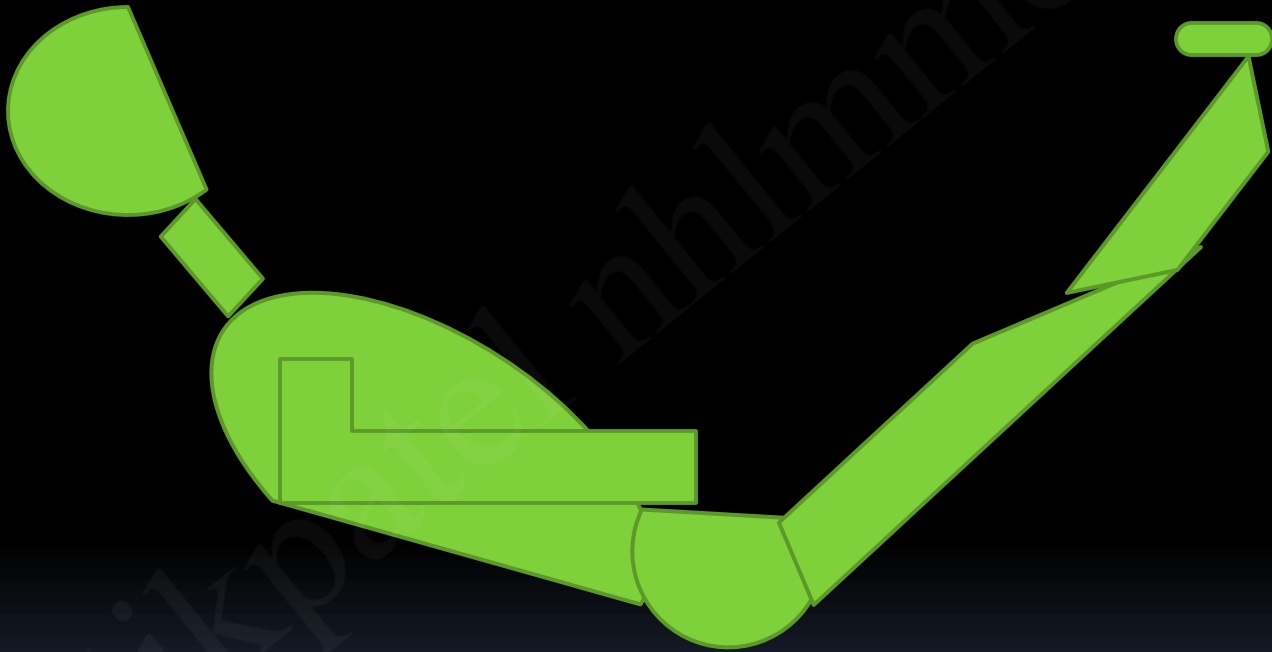
With the time period and intensity of each spasm is increased, and period between two spasm is reduced



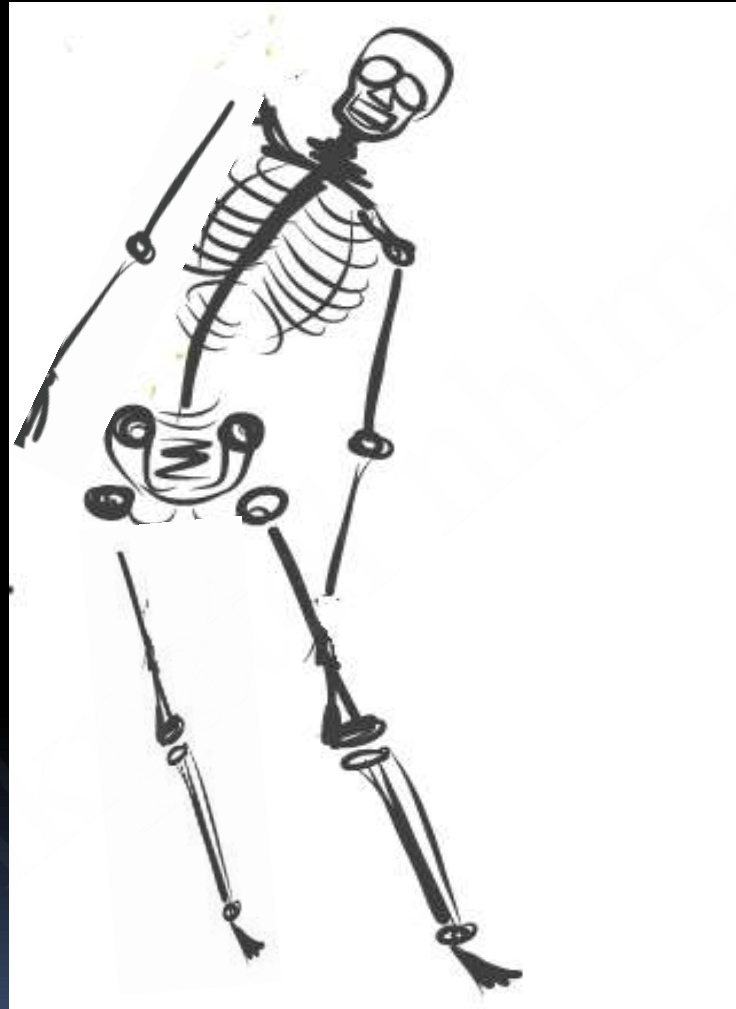
- Threshold of CNS stimulation is lowered so slightest stimulus [air breeze, light, feather touch etc..] results into violent muscle contraction.



Emprosthotonus: spasm of abdominal muscles



pleurosthotonus



Risus Sardonicus



Fatal dose: 3 to 5 crushed seeds

One seed contains 20 mg of strychnine

Fatal dose in terms of strychnine : 60 to 100 mg of strychnine

FATAL PERIOD : 1 TO 2 HOURS

treatment



- Dark quiet room
- Maintain airway
- Anesthesia if required
- Gastric Lavage with KMnO_4 /charcoal/tannic acid
- Barbiturates: phenobarbitone, sodium amylate 500-750 mg iv plus short acting muscle relaxant saxamethanium
- Avertin anesthesia- 3 gm Na amylate iv 250 mg rectal x 5
- Mephenesin 30 mg/kg iv
- Diazepam 2.5 mg iv
- Urine acidification
- Symptomatic treatment

Difference between st.poisoning and tetanus

- h/o poisoning
 - Fever -nt
 - Onset sudden
 - Trismus or lock jaw- late feature
 - All muscles affected simultaneously
 - Relaxation between two spasm complete
 - Death in few hours
 - C/A
 - Acts on post synaptic membrane
- h/o injury
 - Fever +nt
 - Onset gradual
 - Trismus or lock jaw is early feature
 - Not so
 - Sustained rigidity between two spasm
 - Death delayed
 - Culture
 - Acts on pre synaptic membrane

■ Must know

- Site of action
- Active principles [alkaloids] in nux vomica seeds
- Mode of action
- Opisthotonus, emprosthotonus, pleurosthotonus, risus sardonicus
- Fatal dose
- Cause of death
- Specific antidote
- Differences between tetanus and nux vomica poisoning